

FIG. 1

16a

# Quadrature Mach-Zehnder Modulation Device

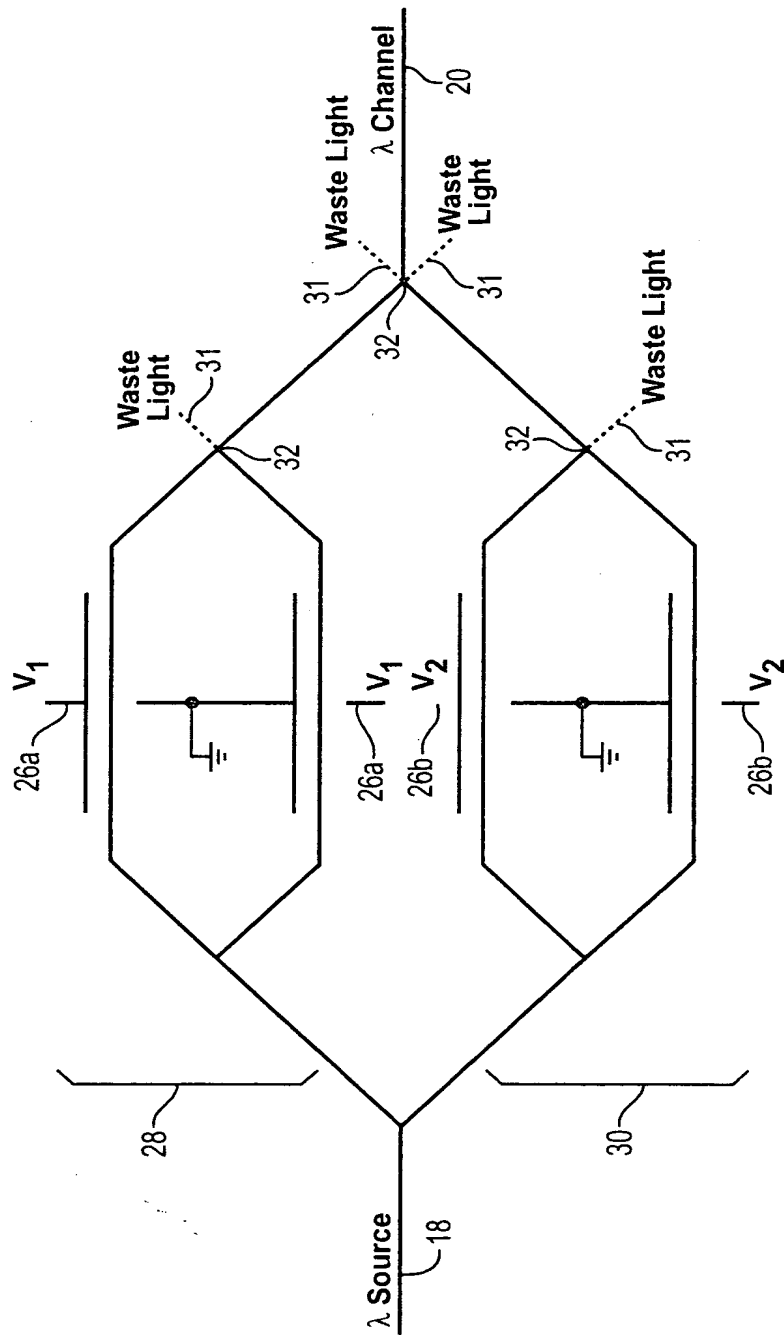


FIG. 2

# Mach-Zehnder Device Transfer Function

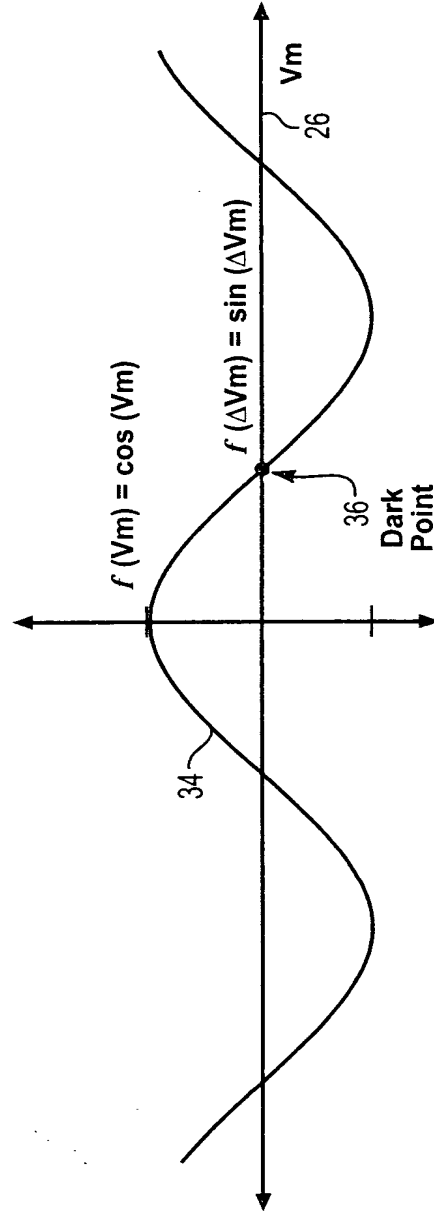


FIG. 3

Modulation Synthesizer

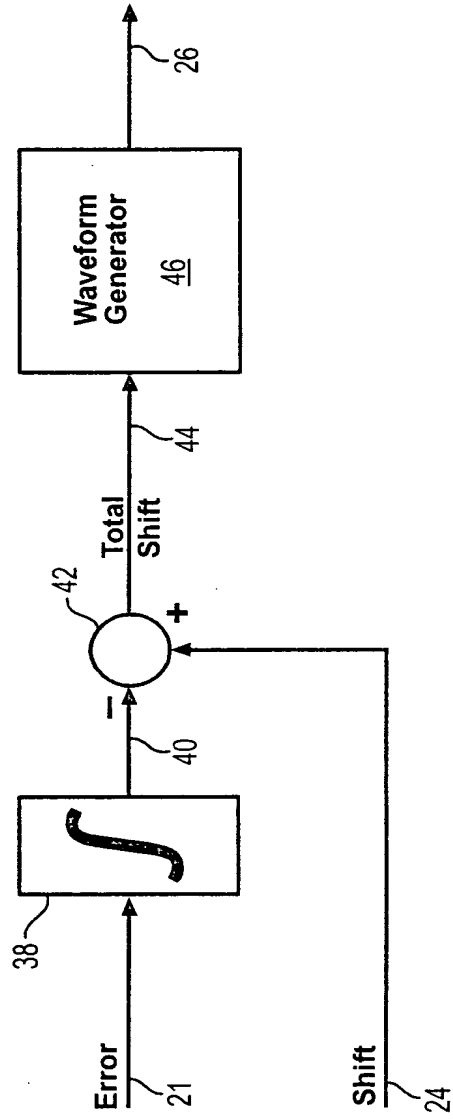


FIG. 4

# Quadrature Modulation Synthesizer (With On/Off Data Keying)

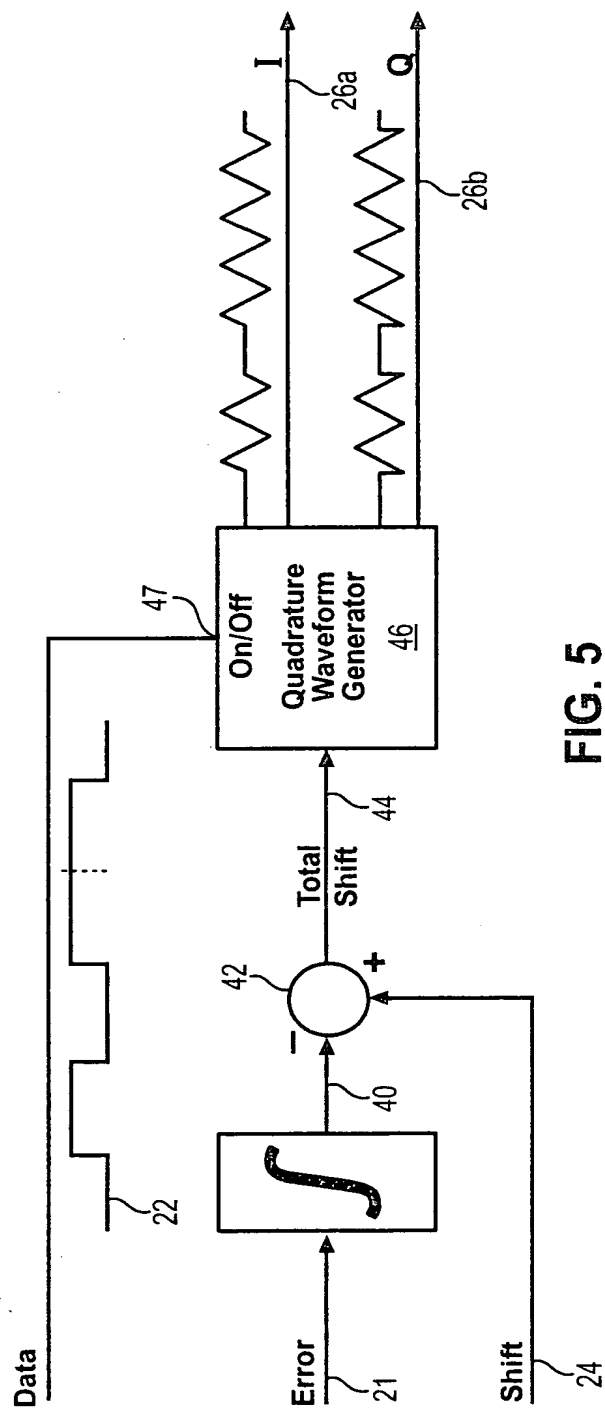


FIG. 5

Phase Modulation Device

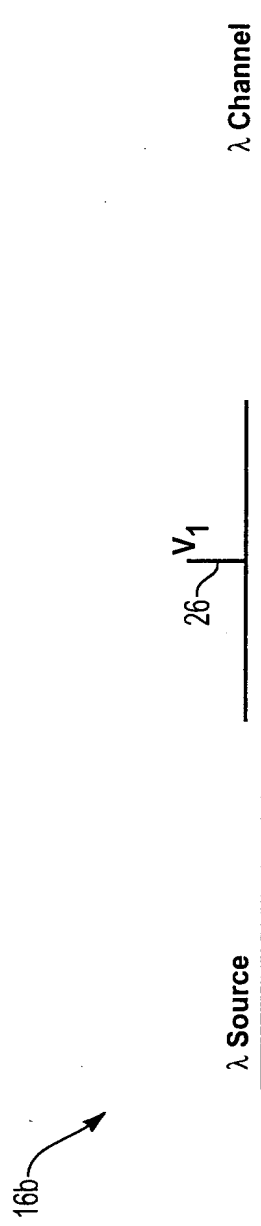


FIG. 6

# Modulation Synthesizer (With Frequency Shift Keying)

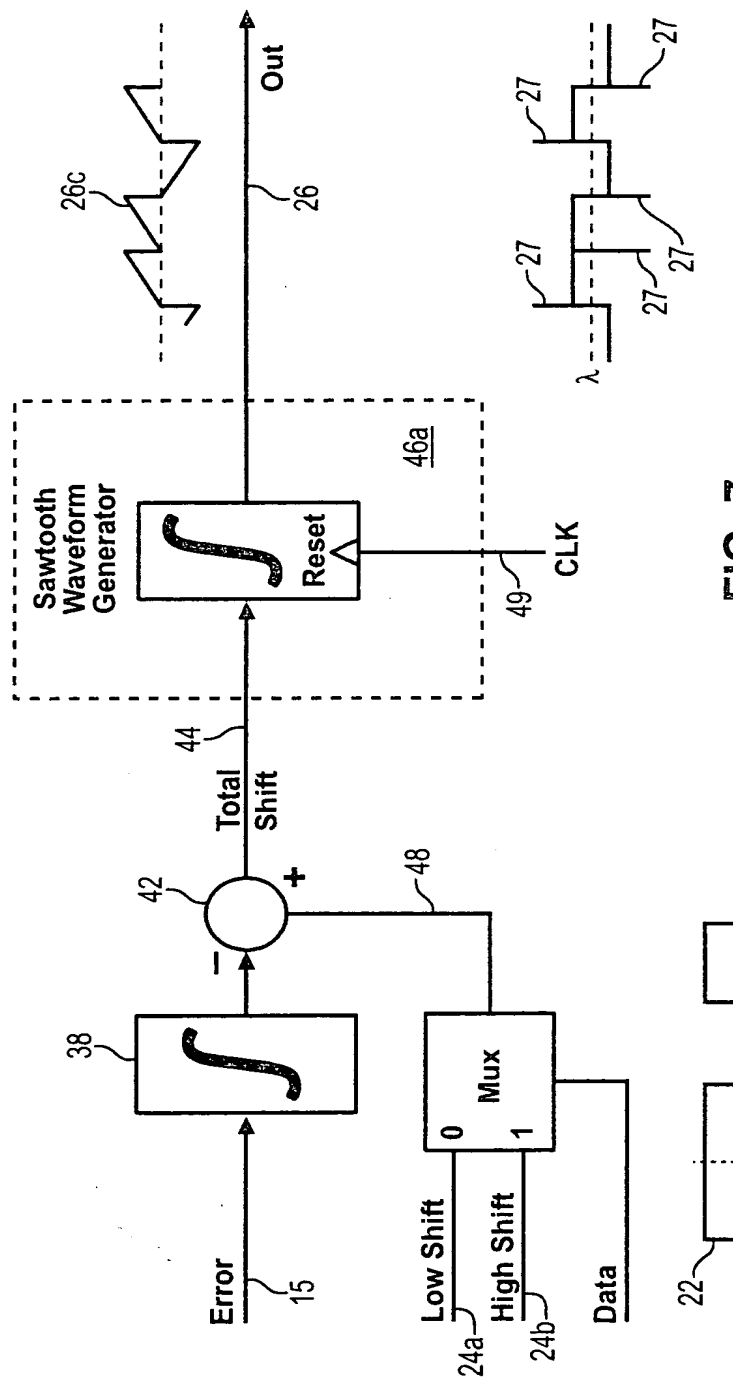


FIG. 7

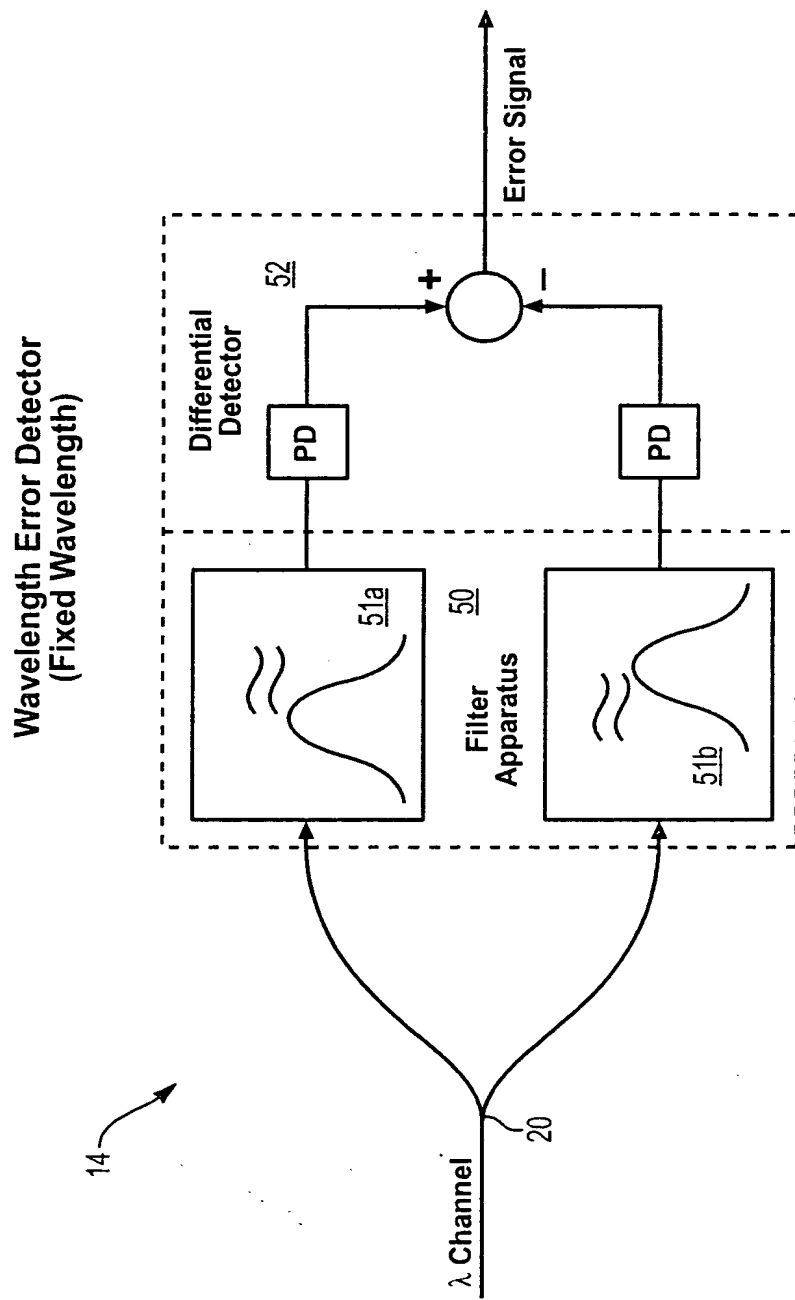
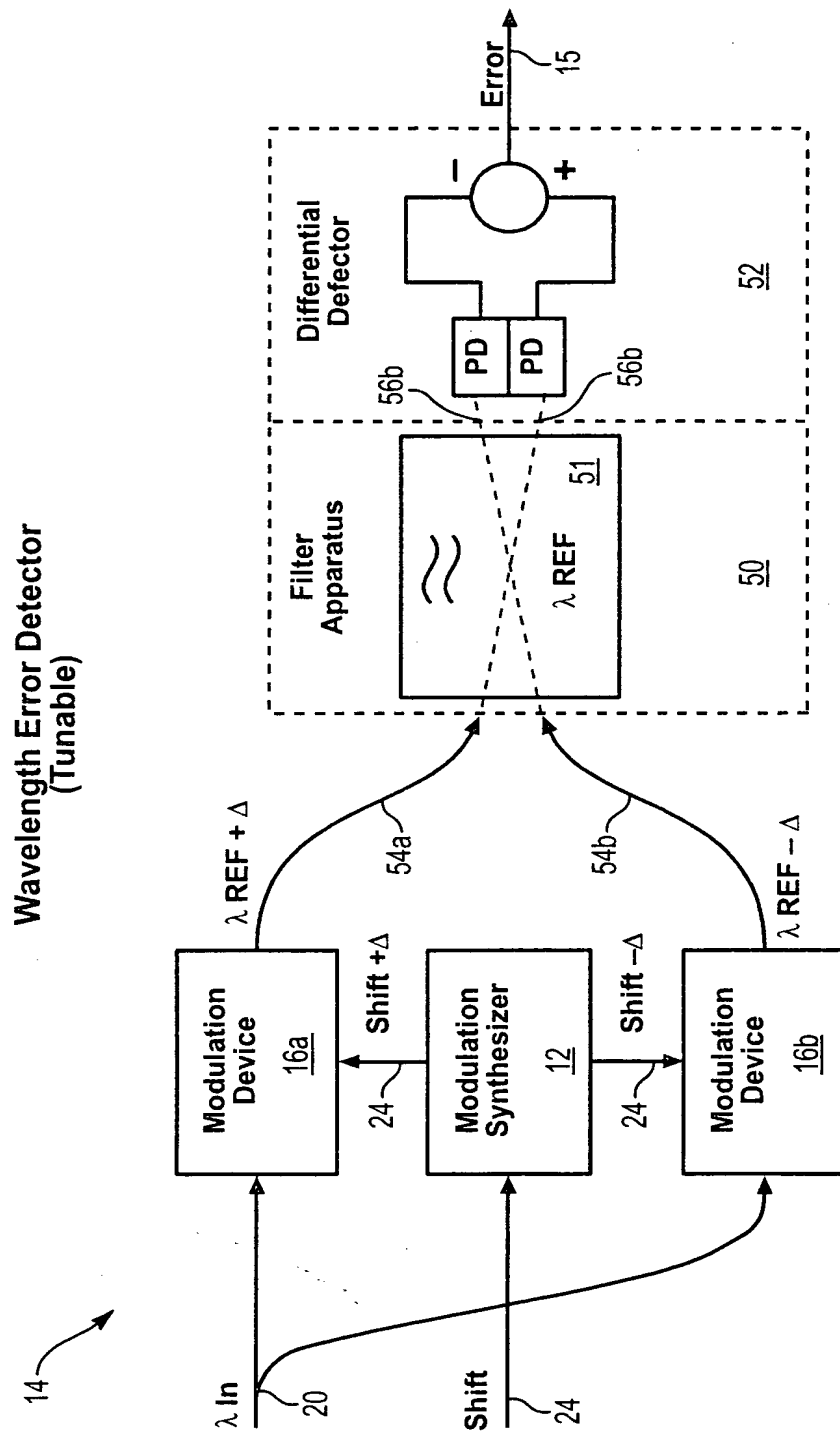


FIG. 8





**FIG. 9**

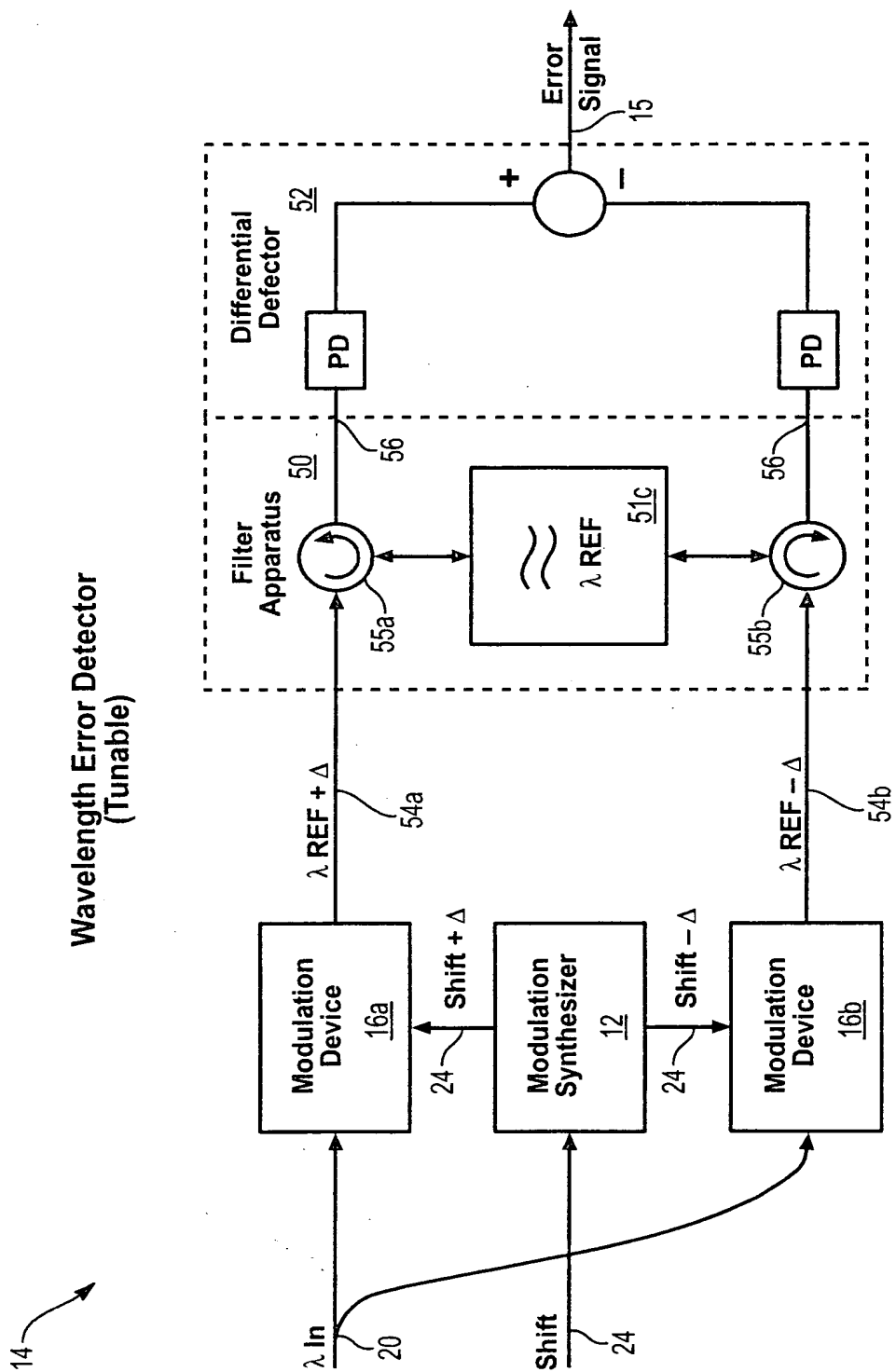


FIG. 10

# Channel Allocation Mechanism

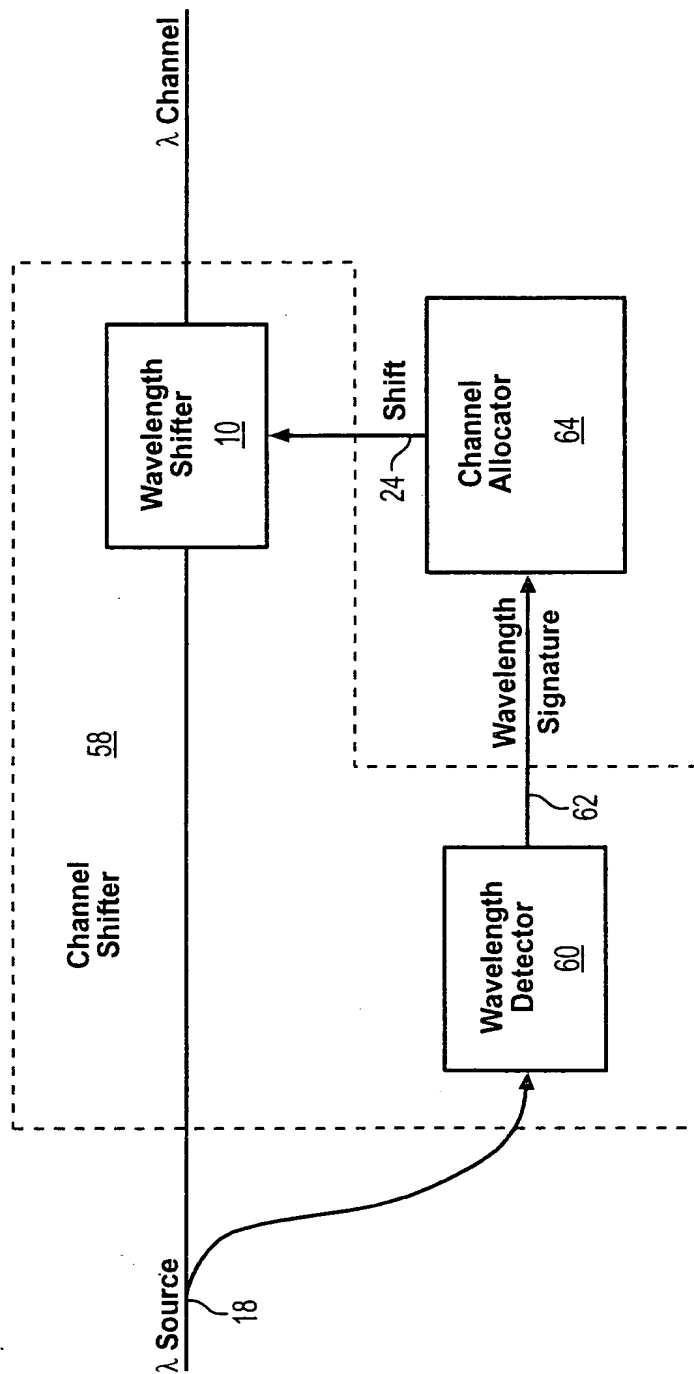


FIG. 11

70 → Tunable Wavelength Stabilized Transmitter

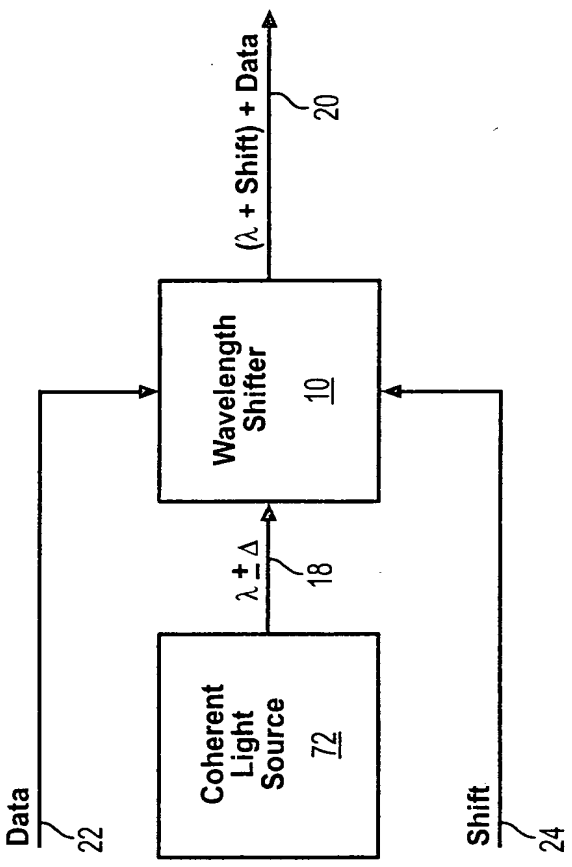


FIG. 12

FIG. 13 is a block diagram of a Recursive Wavelength Shifter. The diagram shows an input signal  $\lambda$  In (18) entering an Amplifier (82). The output of the Amplifier (82) is fed back into the input of the Amplifier (82) through a Loop Filter (84). The output of the Amplifier (82) is also fed into a Wavelength Shifter (10). The output of the Wavelength Shifter (10) is labeled  $(\lambda + \text{Shift})$  and is fed back into the input of the Amplifier (82). The output of the Wavelength Shifter (10) is also fed into an Output Filter (78). The output of the Output Filter (78) is labeled  $\lambda$  Out (87). A Shift input (24) is provided to the Wavelength Shifter (10). A graph (80) shows a series of vertical lines of varying heights, representing a spectrum or waveform.

# Recursive Wavelength Shifter

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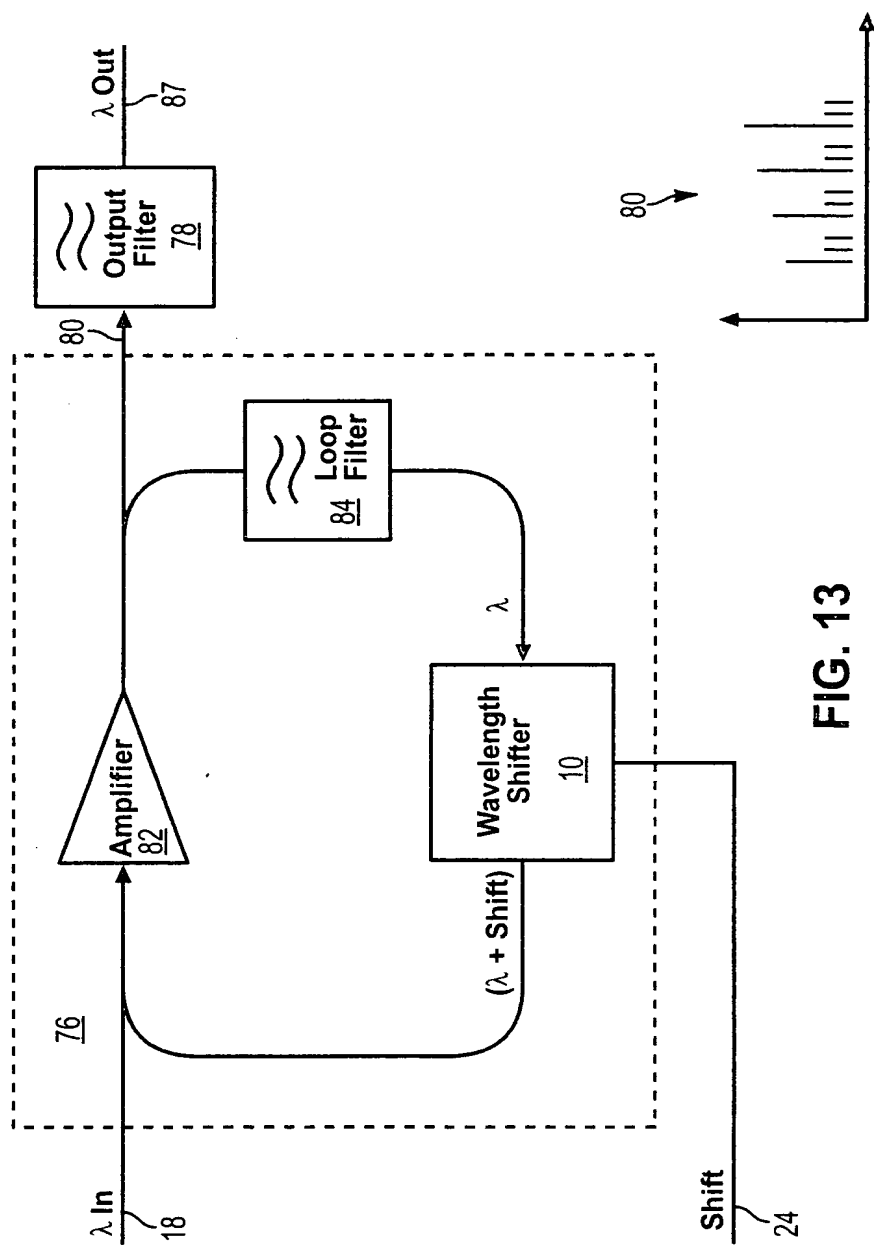


FIG. 13

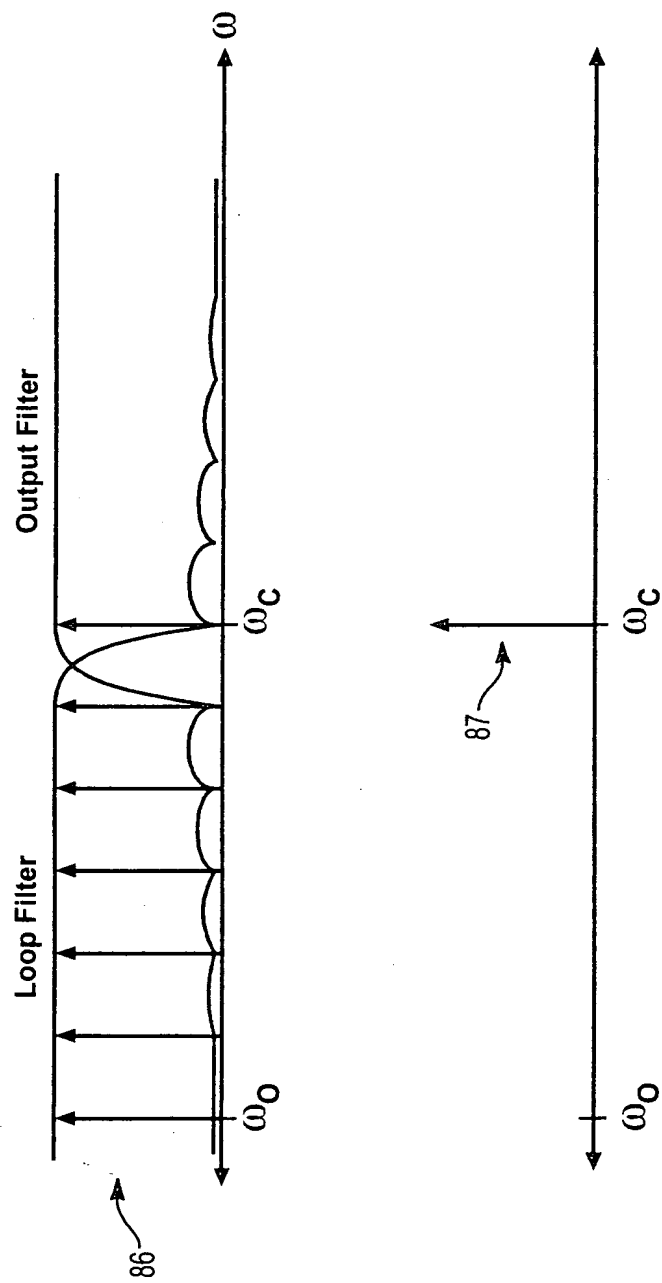


FIG. 14